

DECLARATION

I, Meeseon Lee, a Korean citizen of 502-816, Bang-hwa Apartment, Bangwha-dong, Gangsu-gu, Seoul, Korea do hereby solemnly and sincerely declare as follows:

1. That I am well acquainted with the English and Korean languages.
2. That the following is a correct translation into English of Korean Patent

Application No. 2003-27310 filed April 29, 2003, and I make the solemn declaration conscientiously believing the same to be true.

Seoul, October 29, 2007



Meeseon Lee

[DOCUMENT] Application for Patent
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5 [TITLE OF THE INVENTION-KOREAN] 호스트의 이동성을 지원할 수 있는 무선 근거리 네트워크 시스템 및 그의 동작방법

[TITLE OF THE INVENTION-ENGLISH] Wireless Local Area Network making a mobility of host possible and a method operating thereof
10

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[EXAMINATION REQUEST] YES

5 [PURPOSE] I, hereby, submit the present application for the Patent and request the examination of the present invention under the Article 42 and the Article 60 of the Patent Law.

Attorney

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[Official Fee]

10	[Basic fee]	20 pages	₩29,000
	[Additional fee]	12 pages	₩12,000
	[Claiming Priority Right]	0 case	₩0
	[Filing Request For Examination]	16 claims	₩621,000
	[Total]		₩662,000

[Documents] 1. One copy of Abstract, Specification (& drawings)

[ABSTRACT OF THE DISCLOSURE]

[Abstract]

Disclosed is a wireless local area network system capable of supporting host mobility services and an operation method therefor. The wireless local area network system comprises a gateway performing functions of a home agent in mobile wireless communication environments, and sending prefix information; and access points each allocating an Internet Protocol(IP) address to a mobile host in an range thereof by using the prefix information of the gateway, wherein each access point produces and sends a Binding Update list corresponding to the mobile host to the gateway. The present invention can support the mobility for mobile hosts, all the mobile hosts with or without mobile IPv6 stack, in a wireless local area network.

[The main figure]

Fig. 3

[Search term]

Prefix, Encapsulation, Decapsulation, Binding update, Mobile Ipv6

[SPECIFICATION]

[The title of the invention]

Wireless Local area Network making a mobility of host possible and a method operating thereof

5 [The brief description of the drawings]

Fig. 1 is a schematic view for explaining a conventional wireless local area network system;

Fig. 2 is a schematic view for explaining a wireless local area network system capable of supporting mobility for mobile hosts according to an embodiment of the present invention;

Fig. 3 is a detailed block diagram for showing an access point(AP) 300 of Fig. 2;

Fig. 4 is a view for showing a format of an IP address assigned to mobile hosts by the access point(AP) of Fig. 2

Fig. 5 is a view for showing operation flows for a process for generating mobile host IP addresses of Fig. 4;

Fig. 6 is a view for showing operation flows for a process for associating mobile hosts according to an embodiment of the present invention;

Fig. 7 is a view for showing operation flows for a first packet transmission process (a correspondent node → a mobile host) according to an embodiment of the present invention;

Fig. 8a and Fig. 8b are views for showing an encapsulated data packet format and a format for a binding update sent to a gateway according to an embodiment of the present invention;

Fig. 9 is a view for showing operation flows for a second packet transmission process (a correspondent node → a mobile host) according to an embodiment of the present invention;

Fig. 10 is a view for showing a format for a packet transmitted to a mobile host in the second packet transmission process of Fig. 9; and

Fig. 11 is a view for showing operation flows for a re-association process in case that a mobile host(MH) associated with an access point(AP) moves in a range of a different access point AP2 according to an embodiment of the present invention.

Description of the reference numerals in the drawings

GW/HA : gateway

AR : access router

300(AP) : access point	MH : mobile host
303 : N/W input/output unit	307 : Mac storage unit
310 : IP address generation unit	330 : binding cache
350 : encapsulation unit	370 : decapsulation unit
390 : BU transmission unit	

[Detailed description of the invention]

[Object of the invention]

[The field of the invention and the related art]

The present invention relates to a wireless local area network system, and more particularly, to a wireless local area network system and an operation method therefor in which the system has access points (APs) capable of supporting host mobility.

In recent, with the fast spread of wireless communications and the Internet, Internet services even in wireless environments have been demanded, and, accordingly, users hope to use the Internet through wireless communication services by which mobility can be guaranteed. The wireless communications such as wireless LAN, mobile IP, MANET, and so on, have been under active researches and developments in recent.

Of the communication networks, the wireless local area network (WLAN) has an advantage of supporting services of certain standard, but also has a disadvantage in that it can be used within a certain range.

A general wireless IPv6 host without mobile IPv6 stack has a problem of poor continuity of services occurring when it moves to an AP for a different router.

Fig. 1 is a view for schematically showing a conventional general wireless local area network system.

A wireless local area network 100, which may be a network in corporation or a network in campus, has a gateway 10 connected to the Internet 200 which is an external network, the gateway 10 has plural access routers (ARs) 20 and 30 connected thereto, for example, and one access router AR1 (20) has plural APs 21, 22, ..., and 31 connected thereto, each of which deals with mobile hosts (MH) in a certain range thereof. In here, the mobile hosts under the access router AR1 (20) are assigned IP addresses based on prefix information (Prefix:A) of the access router AR1.

However, the conventional wireless local area networks have the following limits to the mobility support for the mobile hosts.

For example, if a mobile host (MH) associated with an AP AP1_1(21) connected to the first access router AR1 (20) moves in a range dealt with by an access point AP1_2 (22) connected to the first access router AR1 (20), the mobile host (MH) is supported by the access point AP1_2 (22). That is, the access points AP1_1 (21) and AP1_2 (22) connected to the first access router AR1 (20) can communicate with each other through the Inter Access Point Protocol (IAPP). Accordingly, if the mobile host (MH) communicating with the Internet 200 by using the access point AP1_1 (21) moves in a range covered by the access point AP1_2 (22), the mobile host (MH) can be continuously provided with current services through the IAPP.

However, if the mobile host(MH) moves in a range of an access point AP2_1 (31) connected to a second access router AP2 (30), the mobile host(MH) is assigned a new IP address by the access point AP2_1, and, at this time, prefix information of the IP address is based on prefix information (Prefix:B) of the second access router AR2(30).

Accordingly, the mobile host (MH) is recognized as a new network, and undergoes a new association process, so it cannot continuously receive current services.

[Technical object of the invention]

The present invention has been devised to solve the above problem, it is an aspect of the present invention to provide a wireless local area network system and an operation method therefor in which the system has access points (APs) capable of supporting the mobility of mobile hosts.

[Construction and operation of the invention]

In order to achieve the above aspect, a wireless local area network system according to the present invention comprises a gateway performing functions of a home agent in mobile wireless communication environments, and sending prefix information; and access points each allocating an Internet Protocol (IP) address to a mobile host in an range thereof by using the prefix information of the gateway, wherein each access point produces and sends a Binding Update list corresponding to the mobile host to the gateway.

When a packet is sent from a correspondent node to the mobile host, the gateway encapsulates a header portion of the packet with a source address and a destination address, and the access points each decapsulate the encapsulated packet sent from the gateway.

When a packet is sent from the mobile host to a correspondent node, the access points

each encapsulate a header portion of the packet with a source address and a destination address and send the encapsulated packet.

Preferably, the gateway manages at least one or more access routers, the access routers each manage at least one or more access points, and the access points each manage at least one or more mobile hosts, and IP addresses for the mobile hosts have the same prefix information. Further, an IP address for each access point serves as a Care-of Address (CoA) for each mobile host.

The access points each includes an IP address generation unit for generating the IP address for the mobile host in the management range in combination of the prefix information and a Mac address of the mobile host; a binding cache for storing information on the IP address-allocated and associated mobile host; and a Binding Update (BU) transmission unit for sending to the gateway the produced Binding Update list for the mobile host.

Further, the access points each have a decapsulation unit for decapsulating a source address and a destination address that are encapsulated with a header portion of a packet sent from a correspondent node, and an encapsulation unit for encapsulating a header portion of a packet to be sent to a correspondent node with a source address and a destination address.

In the meantime, an operation method for a wireless local area network system according to the present invention comprises steps of sending prefix information according to a request of a mobile host wherein a gateway performs functions of a home agent in mobile wireless communication environments; and allocating an Internet Protocol (IP) address to the mobile host by using the prefix information, and associating the mobile host; and producing a Binding Update list for the associated mobile host, and sending the Binding Update list to the gateway.

The operation method further comprises steps of, when a packet is sent from a correspondent node to the mobile host, encapsulating a header portion of the packet from the gateway with a source address and a destination address and sending the encapsulated packet; and decapsulating a header portion from the encapsulated packet sent from the gateway.

Further, the operation method further comprises steps of, when a packet is sent from the mobile host to a correspondent node, encapsulating a header portion of a packet with a source address and a destination address, and sending the encapsulated packet.

Preferably, the gateway manages at least one or more access routers, the access routers each manage at least one or more access points, the access points each manage at least

one or more mobile hosts, and IP addresses for the mobile hosts have the same prefix information. Further, An IP address for each access point serves as a Care-of Address (CoA) for each mobile host.

5 The mobile host association step includes steps of generating the IP address for the mobile host in the management range in combination of the prefix information and a Mac address of the mobile host; storing information on the IP address-allocated mobile host, and producing a Binding Update list of the associated mobile host; and sending to the gateway the produced Binding Update list for the mobile host.

10 Accordingly, mobile hosts in a wireless local area network can be supported with mobility, and the mobility can be supported for all the mobile hosts with or without mobile IPv6 stack.

The invention will be described in detail with reference to the following drawings.

Fig. 2 is a schematic view for explaining a wireless local area network system according to an embodiment of the present invention.

15 A wireless local area network system has a gateway GW/HA for performing communication connections with an external network, plural access routers AR1 and AR2 connected to the gateway GW/HA, plural access points AP1 and AP2 controlled by the access routers AR1 and AR2 respectively, and mobile hosts(MH) supported by the access points AP1 and AP2 respectively.

20 The gateway GW/HA is connected with an external network, and serves as a gateway for communicating packets from or to the external network, and the gateway function performs a function of mobile IPv6-based home agent function.

For the home agent function supporting mobile IPv6-based mobility, for example, there is a function for encapsulating packets on a home link destined to an IP address of a mobile host (MH) while the mobile host (MH) is away from the home, and tunneling to a
25 Care-of Address (CoA) associated with the mobile host (MH). Further, there are a function for managing a list of binding updates connecting mobile hosts' IP addresses to Care-of Addresses, and so on.

At least one or more access routers AR1 are connected to the gateway GW/HA, and
30 each access router AR1 connects network layers with one another by a device connecting separated networks using the same transmission protocol.

The function of the access router AR1, in addition to the function a bridge has,

decides a mobile node, that is, a mobile host(MH) in a different network or a self-network depending upon a path allocation table and, accordingly, selects the most efficient path of various paths, and sends packets through the selected path.

5 The access point AP1 is connected to the access router AR1, and at least one or more access points AP1 are connected to one access router AR1. In here, the access point AP1 processes network layer in order to support the mobility of the mobile host (MH), so it is assigned an IP address from the access router AR1. The assigned IP address of the access point AP1 serves as a CoA for all mobile hosts (MH) connected the access point (AP).

10 The access point (AP) for supporting the mobility of a mobile host according to the present invention is described in detail with reference to the block diagram of the access point(AP) 300 shown in Fig. 3.

The access point (AP) 300 has an N/W input/output unit 303, a Mac storage unit 307, an IP address generation unit 310, a binding cache 330, an encapsulation unit 350, a decapsulation unit 370, and a Binding Update(BU) transmission unit 390.

15 The N/W input/output unit is connected to devices on a network in a wireless manner, and inputs and outputs data transmitted through a network protocol.

The Mac storage unit 307 stores software for performing diverse functions of the access point(AP), and, further, stores Media Access Control(Mac) addresses which are ones for standard data layers necessary for all ports or devices connected to a LAN.

20 The IP address generation unit 310 generates an IP address for a mobile host(MH) to be connected to the access point(AP). The IP address of the mobile host(MH) has a format shown in Fig. 4. The mobile hosts (MHs) in the entire networks controlled by the gateway GW/HA each have the same prefix and a mobile host ID, that is, a Mac address.

25 Fig. 5 is a view for explaining a process for generating an IP address, and a description is made on the process for generating an IP address with reference to Fig. 5.

First, the access point (AP) sends a mobile host prefix request message to the gateway GW/HA (5-1). The gateway that has received the prefix request message responds with a prefix advertisement message (5-2).

30 The router advertisement message of the access router (AR) based on the prefix advertisement message of the gateway GW/HA is sent to the access point (AP). According to this, the access point(AP) recognizes a prefix of the gateway GW/HA, translates the prefix information of the gateway GW/HA into a prefix of the mobile host (MH) and sends the

translated prefix to the mobile host(MH) (5-3). In here, the advertisement message is a message that the gateway GW/HA, access router (AR), or the like, notifies neighboring devices of its existence all the time in the wireless manner.

5 Accordingly, even though the mobile host (MH) moves in a range of any access point(AP), the mobile host (MH) has the same prefix which is the prefix of the gateway GW/HA. Therefore, the IP address of the access point (AP) serves as a Care-of Address (CoA) for all the mobile hosts (MHs) connected to the access point (AP).

10 The binding cache 330 manages information on mobile hosts existing in a range of an access point (AP) in order for mobile hosts (MHs) and the gateway GW/HA to communicate with each other. Further, if case that a new mobile host is associated, the binding cache 330 produces a biding update list.

The encapsulation unit 350 encapsulates a packet header with a source address and a destination address in order to directly send a packet by tunneling from an access point (AP) to an external correspondent node (CN) in case that a mobile host (MH) sends the packet to
15 the correspondent node (CN). In here, the source address is an IP address of an access point (AP), and a destination address is an IP address of a correspondent node (CN).

The decapsulation unit 370 decapsulates the source address and the destination address from the header portion of the encapsulated packet in order to forward the packet to an access point (AP) in which the mobile host (MH) exists from the gateway GW/HA.

20 The Binding Update (BU) transmission unit 390 sends a Binding Update list to the gateway GW/HA. For this, there are two exemplary cases as follows.

The first case is to associate to a gateway GW/HA the mobile hosts existing in a range of an access point (AP), and the second case is to accomplish an optimized path through associating a Binding Update list from the access point (AP) to a correspondent node(CN).

25 Hereinafter, an access point operation process according to the present invention will be described in detail with reference to the accompanying drawings.

(1) A process for associating a mobile host (MH) to an access point (AP) when a mobile host(MH) moves in a range of an access point(AP)(6-1) will be described with reference to Fig. 6.

30 The mobile host(MH) sends an association request message to the access point(AP) (6-2), and the access point(AP) sends to the mobile host(MH) a response message to the association request (6-3).

At this time, a Mac address mac1 of the mobile host (MH) is sent to the access point (AP), and the access point (AP) uses the Mac address mac1 and then produce an unique IP address MN.mac1 of the mobile host (MH).

That is, the IP address generation unit 310, as shown in Fig. 4, combines a prefix
5 MN:: allocated from the gateway GW/HA and the Mac address mac1 of the mobile host (MH), and produces the unique IP address MN.mac1 of the mobile host (MH).

The binding cache 330 uses the produced IP address MH.mac1 of the mobile host (MH) as a home address HoA and the IP address of the access point (AP) as a Care-of Address (CoA), and produces a Binding Update list. Thereafter, the BU transmission unit
10 390 sends to the gateway GW/HA the produced Binding Update list for the mobile host (MH) (6-4).

At this time, the gateway GW/HA produces a binding cache entry (BCE) corresponding to the home address HoA of the mobile host (MH) as in Mobile IPv6.

(2) An access point operation process, when a packet is sent from a correspondent
15 node (CN) to a mobile host (MH), will be described.

First, the case that there is no entry for a mobile host (MH) in the binding cache of a correspondent node (CN) will be described with reference to Fig. 7.

Since the correspondent node (CN) has no entry for the mobile host (MH), the correspondent node (CN) uses an IP address CN.mac4 of the correspondent node (CN) as a
20 source address and an IP address MN.mac1 of the mobile host (MH) as a destination address, and sends a packet to the gateway GW/HA (7-1). The gateway GW/HA that has received the packet obtains a CoA having a HoA as an IP address of the mobile host (MH) with reference to a binding cache the gateway GW/HA itself has. In here, the CoA is an IP address AP.mac2 of the access point (AP) in which the mobile host (MH) exists. The
25 gateway GW/HA encapsulates the packet header portion by using the obtained CoA (an IP address of the AP) and an IP address HA.mac3 of the gateway GW/HA. Fig. 8a is a view for showing an encapsulated data packet format. As shown in Fig. 8a, the gateway GW/HA sends the encapsulated packet to the access point(AP) by using the IP address HA.mac3 of the gateway GW/HA as a source address and the IP address AP.mac2 of the access point(AP)
30 as a destination address (7-2).

The encapsulated packet is sent to the access point(AP) being a destination, and the decapsulation unit 370 of the access point(AP) decapsulates header portions from the

encapsulated packet, and sends the decapsulated packet to the mobile host (MH) (7-3). At this time, the BU transmission unit 390 of the access point (AP) sends to a correspondent node (CN) a binding update having the IP address MN.mac1 of the mobile host (MH) as a HoA and the IP address AP.mac2 of the access point (AP) as a CoA. Fig. 8b shows a binding update format to be sent. By doing so, the correspondent node (CN) recognizes that the current mobile host (MH) exists in a range of the access point(AP).

Next, a description is made on an occasion that there is an entry for a mobile host in the binding cache of a correspondent node (CN) with reference to Fig. 9.

The correspondent node (CN) sends to the gateway GW/HA a packet having an IP address CN.mac4 of the correspondent node (CN) as a source address, a CoA (an IP address of an AP) as a destination address, and an IP address MN.mac1 of a mobile host as a HoA in the header portion, based on binding information in the binding cache (9-1). The packet reaches the access point(AP) without any additional process (9-2), and the access point(AP) translates the destination address, CoA(the IP address of the AP), of the header portion into the HoA, the IP address MN.mac1 of the mobile host, and sends the packet to the mobile host(MH) (9-3).

Accordingly, the mobile host (MH) receives the packet having the IP address of the correspondent node (CN) as a source address and the IP address of its own as a destination address. At this time, Fig. 10 shows a message packet format to be sent.

(3) A description will be made on an access point (AP) operation process in an occasion that a packet is sent from a mobile host (MH) to a correspondent node (CN).

In an occasion that a packet is sent from an access point (AP) to a correspondent node(CN), the access point(AP) searches for whether an IP address of the correspondent node(CN) as a destination exists in a HoA entry of the Binding Update list in the binding cache 330, and, if present, decides that the correspondent node (CN) is in the Basic Service Set (BSS) of its own. In this occasion, the access point (AP) encapsulates the header portion of the packet with a mac address of the correspondent node (CN), and sends the encapsulated packets.

In the meantime, if the IP address of the correspondent node(CN) as a destination does not exist in the Binding Update list in the binding cache 330, the encapsulation unit 350 encapsulates the header portion of the packet with a source address and a destination address. That is, the access point(AP) sends to the correspondent node(CN) the packet having an IP

address AP.mac2 of the access point(AP) as a source address and an IP address CN.mac4 of the correspondent node(CN) as a destination address, through tunneling.

5 (4) A description will be made on an operation process for a different access point AP2 when a mobile host(MH) associated with an access point(AP) moves in a range of the different access point AP2 (11-1) with reference to Fig. 11.

The mobile host(MH) moved in a range of the different access point AP2 performs re-association with the new access point(AP2). The re-association process is the same as the aforementioned association process between a mobile host (MH) and the access point(AP).

10 That is, the mobile host(MH) request the re-association to the new access point AP2 (11-2), and the new access point(AP2) sends to the mobile host (MH) a response to the re-association request (11-3) for the re-association. At this time, the IP address generation unit 310 of the new access point AP2 generates an IP address of the mobile host (MH), and the binding cache 330 produces a Binding Update list. The BU transmission unit 390 sends the Binding Update list to the gateway GW/HA (11-4).

15 At this time, the gateway GW/HA updates an entry corresponding to the HoA in the binding cache of the gateway GW/HA based on the Binding Update list sent from the new access point AP2.

Through the above procedures as above, data between the correspondent node (CN) and the mobile host (MH) associated with the new access point AP2 is processed with a CoA as the IP address of the new access point AP2. The communication procedures for the data process are the same as described based on the access point (AP), so the detailed description on the procedures will be omitted.

20 The gateway GW for the wireless local area network according to the present invention has mobile IPv6-based home agent functions, and the access point (AP) can perform part of the mobile IPv6-based home agent functions. Accordingly, a prefix of the gateway is allocated as a prefix of the IP address of the mobile host, so the mobile host has the same prefix all the time regardless of the movements of the mobile host. Accordingly, the IP address of the access point in a range in which the mobile access moves in becomes the CoA of the mobile host, so the mobility for the mobile host can be supported.

30 **[Effect of the invention]**

According to the present invention, first, the mobility can be supported for mobile hosts in a wireless local area network.

Second, the mobility can be supported for all the mobile hosts with or without mobile IPv6 stack.

Accordingly, the mobility for mobile hosts can be supported in the environment in which the wireless local area network system and the Mobile IPv6 exist together.

5 While the invention has been shown and described with reference to a certain preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

[What is claimed is]

10 **[Claim 1]**

A wireless local area network system, comprising:
a gateway performing functions of a home agent in mobile wireless communication environments, and sending prefix information; and
access points each allocating an Internet Protocol (IP) address to a mobile host in an
15 range thereof by using the prefix information of the gateway, wherein each access point produces and sends a Binding Update list corresponding to the mobile host to the gateway.

[Claim 2]

The wireless local area network system as claimed in claim 1, wherein, when a packet is sent from a correspondent node to the mobile host, the gateway encapsulates a header
20 portion of the packet with a source address and a destination address, and the access points each decapsulate the encapsulated packet sent from the gateway.

[Claim 3]

The wireless local area network system as claimed in claim 1, wherein, when a packet is sent from the mobile host to a correspondent node, the access points each encapsulate a
25 header portion of the packet with a source address and a destination address and send the encapsulated packet.

[Claim 4]

The wireless local area network system as claimed in claim 1, wherein the gateway manages at least one or more access routers, the access routers each manage at least one or
30 more access points, and the access points each manage at least one or more mobile hosts.

[Claim 5]

The wireless local area network system as claimed in claim 4, wherein IP addresses for the mobile hosts have the same prefix information.

[Claim 6]

5 The wireless local area network system as claimed in claim 1, wherein an IP address for each access point serves as a Care-of Address (CoA) for each mobile host.

[Claim 7]

The wireless local area network system as claimed in claim 1, wherein the access points each includes:

10 an IP address generation unit for generating the IP address for the mobile host in the management range in combination of the prefix information and a Mac address of the mobile host;

a binding cache for storing information on the IP address-allocated and associated mobile host; and

15 a Binding Update (BU) transmission unit for sending to the gateway the produced Binding Update list for the mobile host.

[Claim 8]

20 The wireless local area network system as claimed in claim 7, wherein the access points each further include a decapsulation unit for decapsulating a source address and a destination address that are encapsulated with a header portion of a packet sent from a correspondent node.

[Claim 9]

The wireless local area network system as claimed in claim 7, wherein the access points each further include an encapsulation unit for encapsulating a header portion of a packet to be sent to a correspondent node with a source address and a destination address.

25 **[Claim 10]**

An operation method for a wireless local area network system, comprising steps of:
sending prefix information according to a request of a mobile host wherein a gateway performs functions of a home agent in mobile wireless communication environments; and
30 allocating an Internet Protocol (IP) address to the mobile host by using the prefix information, and associating the mobile host; and

producing a Binding Update list for the associated mobile host, and sending the Binding Update list to the gateway.

[Claim 11]

The operation method as claimed in claim 10, further comprising steps of, when a packet is sent from a correspondent node to the mobile host,

- encapsulating a header portion of the packet from the gateway with a source address
- 5 and a destination address and sending the encapsulated packet; and
- decapsulating a header portion from the encapsulated packet sent from the gateway.

[Claim 12]

- The operation method as claimed in claim 10, further comprising steps of, when a packet is sent from the mobile host to a correspondent node, encapsulating a header portion
- 10 of a packet with a source address and a destination address, and sending the encapsulated packet.

[Claim 13]

- The operation method as claimed in claim 10, wherein the gateway manages at least one or more access routers, the access routers each manage at least one or more access points,
- 15 and the access points each manage at least one or more mobile hosts.

[Claim 14]

The operation method as claimed in claim 13, wherein IP addresses for the mobile hosts have the same prefix information.

[Claim 15]

- 20 The operation method as claimed in claim 13, wherein an IP address for each access point serves as a Care-of Address (CoA) for each mobile host.

[Claim 16]

- The operation method as claimed in claim 10, wherein the mobile host association step includes steps of:
- 25 generating the IP address for the mobile host in the management range in combination of the prefix information and a Mac address of the mobile host;
- storing information on the IP address-allocated mobile host, and producing a Binding Update list of the associated mobile host; and
- sending to the gateway the produced Binding Update list for the mobile host.